

REMARKS

The Office Action of February 23, 2006, has been received and reviewed.

Claims 1-33 are currently pending and under consideration in the above-referenced application. Of these, claims 1, 2, 9, 13-18, 21-24, 28, 32, and 33 have been rejected, while claims 3-8, 10-12, 19, 20, 25-27, 30, and 31 are directed to allowable subject matter.

Reconsideration of the above-referenced application is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 1, 2, 9, 13-18, 21,-24, 28, 32, and 33 are rejected under 35 U.S.C. § 103(a).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Sanders in View of Tischler

Claims 1, 2, 9, 17, 18, 21-24, 28, 29, 32, and 33 stand rejected under 35 U.S.C. § 103(a) for being drawn to subject matter that is assertedly unpatentable over the teachings of U.S. Patent 5,506,607 to Sanders, Jr., et al. (hereinafter "Sanders"), in view of teachings from U.S. Patent Application Publication 2003/0114016 of Tischler (hereinafter "Tischler").

The teachings of Sanders relate to apparatus that are used to form three-dimensional (3-D) models by "plotting" material (*e.g.*, like an ink jet printer) onto a horizontally oriented, vertically moveable support 10. Sanders teaches that the support 10 is a flat structure to which a planar fabrication plate, or "base plate," may be adhered. Col. 14, lines 1-3. The fabrication plate may include a surface that has been coated with a so-called

“build material (MC)” or that otherwise includes a material that will facilitate adhesion of a fabricated 3-D model thereto. Col. 13, lines 50-58; col. 14, lines 6-11. The fabrication plate is configured in such a way that, once the 3-D model has been formed, the model may be readily removed from the support 10 and the fabrication plate. Col. 13, line 30, to col. 14, line 46.

Sanders does not teach or suggest that the system thereof may be used to fabricate a model on a substrate.

Tischler teaches a wafer handling system that may be used in conjunction with process tools such as an “epitaxial thin film deposition reactor.” Paragraph [0007]. Specifically, the wafer handling system of Tischler, which is configured to be assembled with a recess of a susceptor of an epitaxial thin film deposition reactor, includes one or more receptacles that will receive wafers of different sizes than the receptacle of the susceptor is configured to receive. Paragraphs [0031] and [0033]. Examples of expitaxial thin film deposition reactors include sputtering chambers and other physical vapor deposition (PVD) reactors, chemical vapor deposition (CVD) reactors, and atomic layer deposition (ALD) reactors. As epitaxial thin film deposition chambers deposit material indiscriminately, rather than in accordance with a program, epitaxial thin film deposition chambers are not capable of effecting programmed material consolidation processes.

It is respectfully submitted that a *prima facie* case of obviousness has not been established against any of claims 1, 2, 9, 17, 18, 21-24, 28, 29, 32, or 33.

It is respectfully submitted that, without the benefit of hindsight that the claims and disclosure of the above-referenced application have provided to the Office, one of ordinary skill in the art wouldn’t have been motivated to combine teachings from Sanders and Tischler in the manner that has been asserted. Most notably, Sanders lacks any teaching or suggestion that the 3-D modeling apparatus thereof may be used to fabricate structures on substrates. Therefore, there does not appear to be any viable reason to incorporate a substrate-support, let alone the handling apparatus of Tischler, into the 3-D modeling apparatus of Sanders.

Moreover, the disclosure of Tischler is limited to carriers that basically act as adapters that allow epitaxial thin film deposition reactors to hold substrates with shapes or dimensions

that differ from the substrate shapes or dimensions that the reactors were designed to contain. As Sanders lacks any teaching or suggestion that the support 10 of the 3-D modeling apparatus disclosed therein could not hold substrates of certain shapes or dimensions, there would be no reason for one of ordinary skill in the art to use the wafer carrier of Tischler on or substitute it for the support 10 of the 3-D modeling apparatus of Sanders.

Moreover, it is respectfully submitted that neither Sanders nor Tischler, taken either separately or in combination, teaches or suggests each and every element of several claims.

With respect to the subject matter recited in claim 18, it is respectfully submitted that neither Sanders nor Tischler teaches or suggests applying a positive pressure to a bottom surface of a substrate to remove the substrate from a support surface.

Claim 21 is allowable since Sanders and Tischler both lack any teaching or suggestion of applying force to a bottom surface of a substrate to remove the same from a support surface.

Claim 23, which recites “forming a layer of unconsolidated material of desired thickness over . . . at least one substrate . . . and selectively consolidating regions of the layer,” is allowable since neither Sanders nor Tischler includes any teaching or suggestion of forming a layer of unconsolidated material or selectively consolidating material. Rather, the teachings of Sanders are limited to 3-D jet printing techniques, in which material is selectively applied in droplets, then allowed to nonselectively solidify. The teachings of Tischler relate solely to epitaxial deposition processes, in which material films are nonselectively (*i.e.*, blanket) deposited.

Claim 24, which depends from claim 23, is further allowable since Sanders and Tischler both lack any teaching or suggestion of forming and selectively consolidating regions of a layer once, let alone “repeating the acts of forming and selectively consolidating at least once.”

Claim 29 is drawn to a method that includes dispensing unconsolidated material in a laminar flow, whereas the teachings and suggestions of Sanders are limited to ejection of jetting beads, or droplets.

Therefore, it is respectfully submitted that, under 35 U.S.C. § 103(a), the subject recited in each of claims 1, 2, 9, 17, 18, 21-24, 28, 29, 32, and 33 is allowable over the subject matter taught in Sanders and Tischler.

Sanders, Tischler, and Jensen

The rejections of claims 13-16 under 35 U.S.C. § 103(a) are based upon the teachings of Sanders, in view of teachings from Tischler and, further, in view of the subject matter taught in U.S. Patent Application Publication 2001/0032111 of Jensen, Jr., et al. (hereinafter "Jensen").

Claims 13-16 are each allowable, among other reasons, for depending directly or indirectly from claim 1, which is allowable.

Each of claims 13-16 is further allowable since none of Sanders, Tischler, and Jensen, or any combination thereof may be used to establish a *prima facie* case of obviousness. In particular, it is respectfully submitted that, without the benefit of hindsight, one of ordinary skill in the art wouldn't have been motivated to combine teachings from Sanders, which are directed to techniques for forming 3-D models from thermoplastic materials, with teachings from Tischler, which relate to wafer carriers that are configured for adaptation of and use in epitaxial thin film deposition reactors, or with the teachings of Jensen, which are directed to carriers that are configured to hold wafers during chemical-mechanical polishing thereof. More specifically, without the benefit of hindsight that the claims and specification of the above-referenced application afford, it is not understood how or why one of ordinary skill in the art would have been motivated to fabricate a polishing pad in accordance with the teachings of Sanders on a substrate supported by the wafer carrier of Tischler or Sanders.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 3-8, 10-12, 19, 20, 25-27, 30, and 31 is respectfully requested.

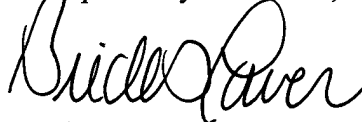
Allowable Subject Matter

The indication that claims 3-8, 10-12, 19, 20, 25-27, 30, and 31 recite allowable subject matter is gratefully acknowledged. None of these claims has been amended to independent form, however, as the claims from which they depend are believed to be allowable.

CONCLUSION

It is respectfully submitted that each of claims 1-33 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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